Product Information

USM 69 i

Stereo Microphone

www.neumann.com

Georg Neumann GmbH • Ollenhauerstr. 98 • 13403 Berlin • Germany • Tel.: +49 (30) 41 77 24-0 • Fax: +49 (30) 41 77 24-50
E-Mail: headoffice@neumann.com, engineering@neumann.com, catalog-info@neumann.com • Web: www.neumann.com

The USM 69 i stereo microphone has two separate dual-diaphragm capsules. These are mounted vertically and rotate against each other. The directional polar patterns can be selected separately for each capsule. The capsules operate independently from each other.

Applications

The USM 69 i condenser stereo microphone is a studio microphone for intensity stereo recording. It is suitable for XY and MS recordings.

Construction

The microphone consists of the amplifier section and the capsule head. The amplifier section contains two microphone amplifiers operating independently from each other. They have an extremely low self noise.

Two completely separate microphone capsules are positioned closely above each other within the capsule head. Their diaphragms are made out of gold-sputtered polyester film. The upper capsule rotates against the lower one over a range of 270°. Color markings on the lower capsule system help to identify the angle by which the upper capsule has been rotated.

When sound waves reach the microphone capsules from different directions they will generate audio signals with different intensity only, but not with time differences, since the capsules are in close proximity and the sound arrives at both capsules simultaneously. The result is an intensity stereo signal that can be summed together for excellent mono compatibility without causing interference.

Polar patterns

The USM 69 i has two built-in rotary switches. The five polar patterns of both capsules can be selected at the microphone itself. Therefore, no special AC power supply units or powering adapters are necessary.

The two outputs attach directly to any 48 V phantom powered connectors.

In addition to the usual polar patterns: omnidirectional, cardioid, and figure-8, we have added a hypercardioid and a wide-angle cardioid pattern.

A built-in DC converter generates the required capsule polarizing voltages.

Features

- *Switchable stereo microphone*
- *Two pressure-gradient transducers with double membrane capsules*
- *MS- or XY-stereophony*
- *Capsules rotary by 270°*
- *Very low noise*
- *Aperture and pick-up angles freely choosable*
- *Directional characteristics reproducably switchable, omni, wide angle cardioid, cardioid, hypercardioid, figure-8*

Electrical features

The amplifiers feature high output capability and extremely low self noise. Distant sound sources, as well as very loud sound sources at close range can therefore be recorded without any problem.

Each amplifier has an active filter. It effectively suppresses subsonic interference as caused by wind or structure borne noise. At the same time, the filter prevents the output transformers from overloading through very low frequency energy.

Use as a mono microphone

The microphones may also be used as completely independent mono microphones. There are many applications when it is important to have a second mono microphone as a back-up, or when the outputs of microphones with different polar response characteristics must be available simultaneously.

The outputs of the two microphone channels can be linked (cascaded). In addition to the individual directional patterns, other characteristics are available through the combination of both channels.

Operational safety

Both microphone systems operate completely independent from each other.

The second amplifier will be unaffected, even in case of a faulty ground of the supply voltage for one of the channels, or a short circuit in one of the outputs.

The microphone is reliable in mono usage, even if only one of the systems is operated and connected. Its simple and redundant circuitry guarantees a low failure rate.

Should the DC converter ever fail, a diode circuit within the microphone ensures that both systems will remain operational. The cardioid pattern is automatically chosen. The sensitivity is reduced by 3 dB.

Application Hints

- *As XY stereo mic*
- *As MS stereo mic*
- *Overall stereo main mic (overhead)*
- *Announcer's mic for broadcasting, drama, features...*

These are just some of the most common applications. We recommend additional experimentation to gain maximum use from this microphone.

Delivery Range

Microphone USM 69 i (mt)

Catalog No.

USM 69 i	ni	006974
USM 69 i mt	blk	006976

Selection of Accessories

Auditorium hanger, MNV 87	ni	006804
Auditorium hanger, MNV 87 mt	blk	006806
Elastic suspension, EA 30 A	ni	006346
Elastic suspension, EA 30 A mt	blk	006347
Windscreen, WS 69	blk	006750
Battery supply, BS 48 i-2	blk	006496
Power supply, N 248 EU	blk	008537
Power supply, N 248 US	blk	008538
Power supply, N 248 UK	blk	008539
Microphone cable, IC 5	blk	006623
Microphone cable, IC 5 mt	blk	006624
Microphone cable, IC 6 (with stand mount swivel)	ni	006621
Adapter Cable, AC 20 (1m)		006595

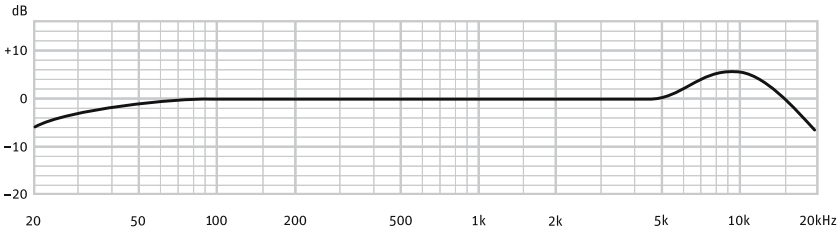
A complete survey and detailed descriptions of all accessories are contained in the accessories catalog.

Meaning of color codes:
blk = black, ni = nickel

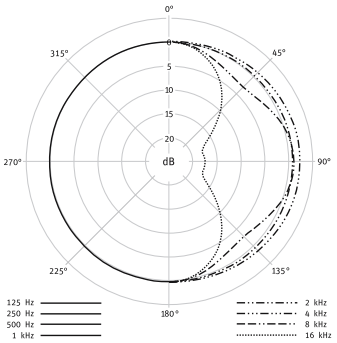
Technical Data

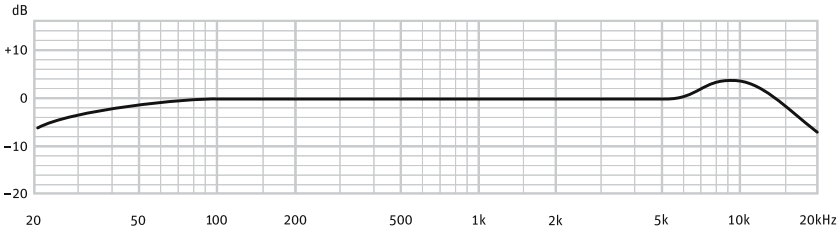
Acoustical operating principle	Pressure gradient transducer
Directional pattern	Omnidirectional, wide angle cardioid, cardioid, hypercardioid, figure-8
Frequency range	20 Hz...20 kHz
Sensitivity at 1 kHz into 1 kohm	13 mV/Pa
Rated impedance	150 ohms
Rated load impedance	1000 ohms
Signal-to-noise ratio, CCIR[1] (rel. 94 dB SPL)	70 dB
Signal-to-noise ratio, A-weighted[1] (rel. 94 dB SPL)	81 dB
Equivalent noise level, CCIR[1]	24 dB
Equivalent noise level, A-weighted[1]	13 dB-A
Maximum SPL for THD 0.5%[2]	132 dB
Maximum output voltage	3 dBu
Dynamic range of the microphone amplifier (A-weighted)	119 dB
Supply voltage (P48, IEC 61938)	48 V ± 4 V
Current consumption (P48, IEC 61938)	2 x 0.7 mA
Matching connector	XLR 5F
Weight	510 g
Diameter	30 + 48 mm
Length	293 mm

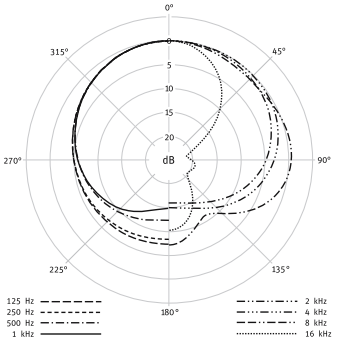
[1] according to IEC 60268-1; CCIR-weighting acccording to CCIR 468-3, quasi peak; A-weighting according to IEC 61672-1, RMS [2] measured as equivalent el. input signal

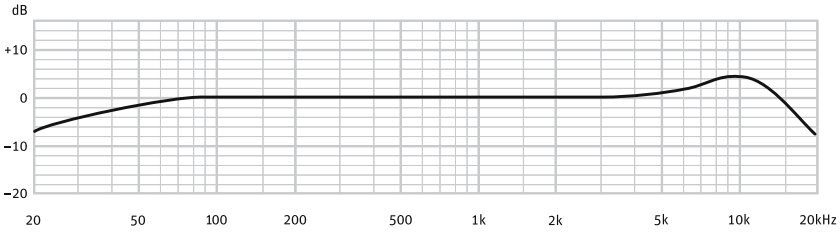


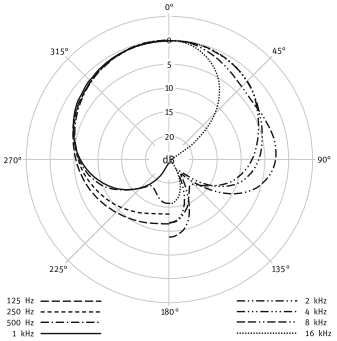
measured in free-field conditions (IEC 60268-4), tolerance ±2 dB

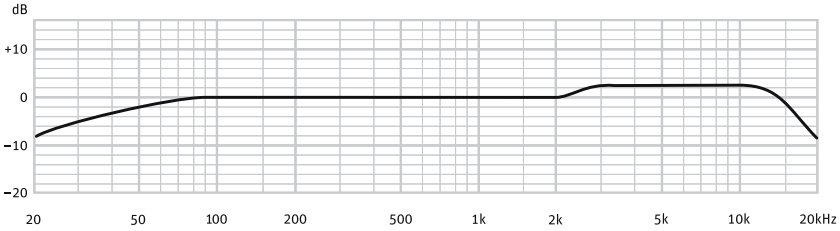


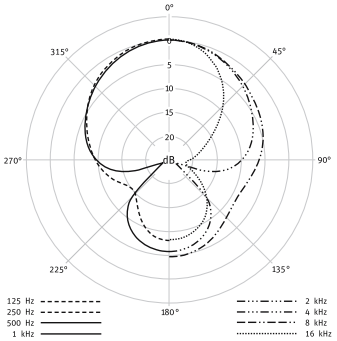


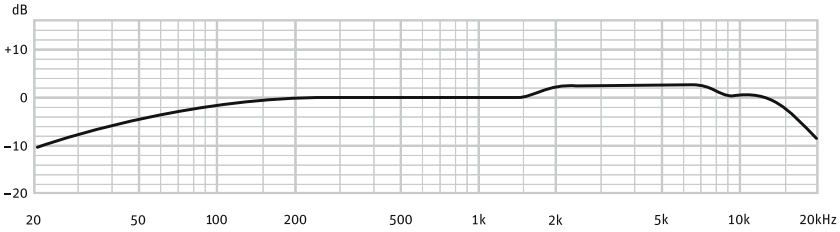


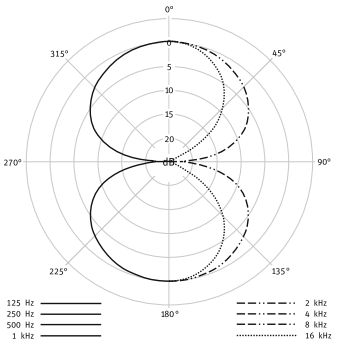












Errors excepted, subject to changes • Printed in Germany • Publ. 01/08 058158/A02
® Neumann is a registered trademark of the Georg Neumann GmbH in certain countries.